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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,892	12/11/2003	Gary W. Johnson	3448-129	1553

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EXAMINER

WHITTINGTON, KENNETH

ART UNIT PAPER NUMBER

2862

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/733,892	Applicant(s) JOHNSON ET AL.	
	Examiner Kenneth J Whittington	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-29 is/are allowed.
- 6) ☒ Claim(s) 1,6-8,11-19,30,31 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 2-5,9,10 and 32-35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6-8, 11, 12, 14-19, 30, 31, 36 and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Mase (US 6,414,482). Regarding these claims, Mase discloses:

a magnet having opposite poles, positioned along a rotational axis such that the axis extends through a central portion of the magnet, and defining a direction of magnetization perpendicular to the rotational axis (See Mase FIGS. 8 and 9, item 130, note rotational axis at intersection of lines L1 and L2);

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a first pole piece adjoined to a first magnet pole surface to provide a first magnetic field (See FIGS. 8 and 9, item 129A) and a second pole piece adjoined to a second magnet pole surface to provide a second magnetic field (See FIGS. 8 and 9, item 129B), each pole piece having an arcuate, arc-shaped, semi-annular or generally u-shaped configuration (See FIGS. 8 and 9), and each has a rectilinear configuration viewed from the side (See FIG. 13);

a first magnetic sensor disposed in the first magnetic field to sense the variations of field flux density of the first magnetic field and to provide an output signal representative thereof (See FIGS. 8 and 9, item 126 near pole piece 129A and col. 11, lines 4-19); and

a second magnetic sensor disposed in the second magnetic field to sense the variations of field flux density of the second magnetic field and to provide an output signal representative thereof (See FIGS. 8 and 9, item 126 near pole piece 129B and col. 11, lines 4-11).

Each of the magnetic sensors, which are Hall sensors, is designed to receive an equivalent magnetic field so that one can work as a fail safe to the other sensor (See col. 12, lines 53-61).

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 13 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase in view of Wendel et al. (US 2003/0137291). Regarding these claims, Mase teaches all the limitations of claims 1, 12, 30, 36 as discussed above. However, Mase does not explicitly show the arc segments being non-concentric. Wendel et al. Teaches of using a ferromagnetic rotor having a pair of arc shaped, non-concentric portions (see

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FIG. 1, items 8, 10, 11). It would have been obvious at the time the invention was made to modify Mase so that the arc shaped pole pieces are non-concentric. One having ordinary skill in the art would have been motivated to do so in view of the statements of Mase which note that modification of the rotor pole pieces and the stator pole pieces to change the air gap enables increased detection sensitivity of rotation (See Mase col. 2, line 51 to col. 3, line 50) and the statements of Wendel et al. which notes that altering the arcuate shaped rotor pole piece in a non-concentric manner provides a more linear response from the sensors (See Wendel et al. paragraphs 0005-0009).

Allowable Subject Matter

Claim 20-29 are allowed.

Claims 2-5, 9, 10 and 32-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for allowance and the indication of allowable subject matter:

Regarding claims 2-5, 20-29 and 32-35, while the prior art shows various designs for surrounding movable hall sensors with pole pieces magnetically coupled to a magnet (See Zhao US

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6,310,473), the prior art does not disclose a single magnet, each of the pole pieces extending from a proximal end from adjacent to a first pole face of the same single magnet to a distal end adjacent the other pole face and defining an air gap with the other pole face, and having a sensor located in the gap therein.

Regarding claims 9 and 10, the prior art similarly does not disclose each of the pole pieces having a proximal portion adjoined to a first pole of the magnet and a distal portion overlapping at least a portion of the second pole.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kogure et al. (US 6,268,722), Goetz et al. (US 6,160,395), Nakazawa (US 5,889,400), Nakamura et al. (US 6,646,435), Matsukawa et al. (US 2002/0135360) and Viola (2004/00171186) each disclose varying designs of position sensors using magnetic sensors and pole pieces extending about the magnetic sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J Whittington whose telephone number is (571) 272-2264. The

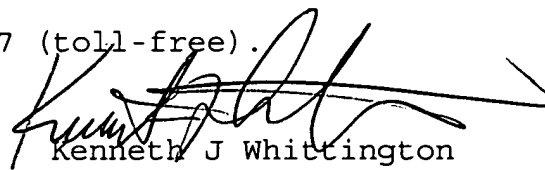
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examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JAY PATIDAR
PRIMARY EXAMINER


Kenneth J Whittington
Examiner
Art Unit 2862

kjw